



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,838	01/17/2006	Sebastien Bardon	0543-1010	3229
465 7590 08/20/2008 YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			EXAMINER GREENE, JASON M	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 08/20/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/564,838

Applicant(s)

BARDON, SEBASTIEN

Examiner

Jason M. Greene

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE/US)
- Paper No(s)/Mail Date 1/17/06: 4/17/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. Figures 1a-1c should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims

2. With regard to claim 26, the Examiner suggests Applicants rewrite the phrase "said channels" in line 3 as "said passages" to provide improved antecedent basis since the term "channels" is not previously used in the claim language.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 15-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg et al. (US 4,364,761).

Berg et al. discloses a filter unit (22) for filtering particles contained in the exhaust gas of an internal combustion engine comprising interleaved sets of adjacent inlet passages (26) and outlet passages (27) in fluid communication through lateral walls (24), the unit comprising a set of lateral wall portions forming an intermediate wall between inlet passages and outlet passages and having, in cross section, an undulation determined to increase the overall volume of the inlet passages at the expense of that of the outlet passages, and the overall volume of the inlet passages being greater than that of the outlet passages, wherein the ratio, r , of the overall volume of the inlet passages to the overall volume of the outlet passages is between 1.15 and 4 and the ratio of asymmetry of the undulation is between 5 and 20% (see Figs. 5k, 5m, 5n and 5p), wherein the outlet passages have a cross section of constant area throughout the length of the filter unit, wherein the inlet passages and outlet passages are straight and parallel, wherein the inlet passages and outlet passages are arranged relative to each other so that all of the gas filtered by an inlet passage passes into outlet passages adjacent the inlet passage, wherein the undulation is periodic (sinusoidal in cross

section) and a half-period of the undulation extends over the width of one of the passages (see Fig. 5m), and wherein a filter body includes the at least one filter unit in Figs. 1-5p and col. 1, line 56 to col. 8, line 37.

With regard to the hydraulic diameter of the outlet passages, Berg et al. teaches a filter unit wherein the inlet and outlet passages have an equal volume and a hydraulic diameter of 0.06 inches (1.52 mm) in Fig. 2 and col. 3, lines 4-15. In col. 7, line 12 to col. 8, line 36, Berg et al. explicitly teaches filter units wherein the inlet passages are formed having greater volume at the expense of the outlet passages to increase filtration area. Thus one of ordinary skill in the art would have recognized that the outlet passages of the filter units shown in Figs. 5k, 5m, 5n and 5p would be formed having hydraulic diameters less than the 1.52 mm taught for the embodiment depicted in Fig. 2 where the inlet and outlet passages have equal volumes. While Berg et al. does not explicitly recite the outlet passages having a hydraulic diameter within the claimed range of 0.9 to 1.4 mm, one of ordinary skill in the art at the time the invention was made would have readily recognized that such values were within the range suggested by Berg et al. of less than 1.52 mm. Furthermore, the claimed hydraulic diameter could be selected by a skilled artisan through routine experimentation and optimization for a desired application.

With regard to the filtering area per liter of the filter unit, Berg et al. teaches the Fig. 2 embodiment having a filter area of at least 20 square inches per cubic inch of filter unit ($0.787 \text{ m}^2/\text{l}$), including an example (Sample 2 in Table A) having 23.9 square inches per cubic inch of filter unit ($0.941 \text{ m}^2/\text{l}$) in col. 3, line 4 to col. 4, line 8. As noted

above, Berg et al. teaches increases the volume of the inlet passages over the outlet passages to increase filtration area in col. 7, line 12 to col. 8, line 36. As such, one of ordinary skill in the art at the time the invention was made would have recognized that the filtration area per liter of filter unit in the embodiments of Figs. 5k, 5m, 5n and 5p would be greater than the $0.787 \text{ m}^2/\text{l}$ and $0.941 \text{ m}^2/\text{l}$ taught for the Fig. 2 embodiment. While Berg et al. does not explicitly recite the filtration area per unit volume within the claimed range of 0.825 to $1.4 \text{ m}^2/\text{l}$, one of ordinary skill in the art at the time the invention was made would have readily recognized that such values were within the range suggested by Berg et al. of greater than $0.787 \text{ m}^2/\text{l}$ and $0.941 \text{ m}^2/\text{l}$. Furthermore, the claimed filtration area per unit volume could be selected by a skilled artisan through routine experimentation and optimization for a desired application. Additionally, it is explicitly noted that the $0.941 \text{ m}^2/\text{l}$ taught for the Fig. 2 embodiment falls within the claimed range.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Noda et al., Schuster et al., Itou et al. and Nishimura et al. references disclose similar filter units.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571)

272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene
Primary Examiner
Art Unit 1797

/Jason M. Greene/
8/16/08

jmg
August 16, 2008